How to Build a Floating Deck

Frame a ground-level floating deck on concrete deck blocks, then finish it with Trex composite decking and a picture frame border. Ours is 24' 4 1/2" x 16' and sits right next to the house without being attached to it. Your deck won't be the same size, but the same method works for any floating deck.



Before (left) and after (right)

Before you start

I'm not a structural engineer, architect or licensed contractor. Consult a professional to make sure your design is structurally sound.

Check your local building codes before you break ground to see whether you're allowed to build and whether you need a permit. A detached deck under 30" often doesn't need one, but double-check.

Call 811 before you dig so you don't hit underground utility lines.

Watch my deck design video for how to choose the size, height, layout and board direction.

Cost

Item	Cost
Framing materials	$1,408
Decking materials	$4,145
Misc. fasteners and supplies	$200
Total	$5,753

For our 24' 4 1/2" x 16' deck. This plan contains affiliate links. If you buy through one, I earn a small commission at no extra cost to you.

Framing tools

- [ ] Landscaping tools (shovel, rake, wheelbarrow)
- [ ] Tamper
- [ ] Dry string, metal stakes and batter boards
- [ ] 4' level and tape measure
- [ ] Spray paint
- [ ] Circular saw
- [ ] Impact driver

Framing materials

- [ ] Treated 2" x 8" x 16' lumber (center joist, rim joists, doubled cantilevered ends)
- [ ] Treated 2" x 8" x 12' lumber (interior joists)
- [ ] Concrete deck blocks
- [ ] Paver base
- [ ] Landscape fabric
- [ ] Protective joist tape
- [ ] 3" exterior grade deck screws
- [ ] 2 1/2" exterior grade framing screws
- [ ] 1 1/2" (10d) galvanized nails
- [ ] Joist hangers
- [ ] Corner brackets and 1 1/2" exterior screws
- [ ] Sand (optional, to mound up the trenches)

Decking tools

- [ ] Miter saw
- [ ] Jig saw
- [ ] Circular saw
- [ ] Impact driver
- [ ] Chalk line
- [ ] Speed square
- [ ] Rubber mallet and hammer
- [ ] Leaf blower (optional, to clear sawdust off your cut line)

Decking materials

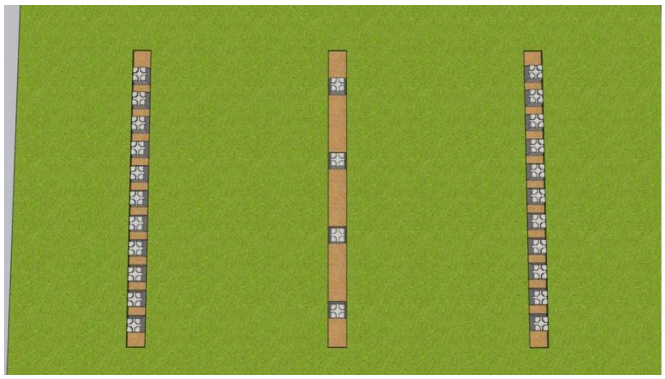
- [ ] Trex Enhance square edge boards (picture frame border)

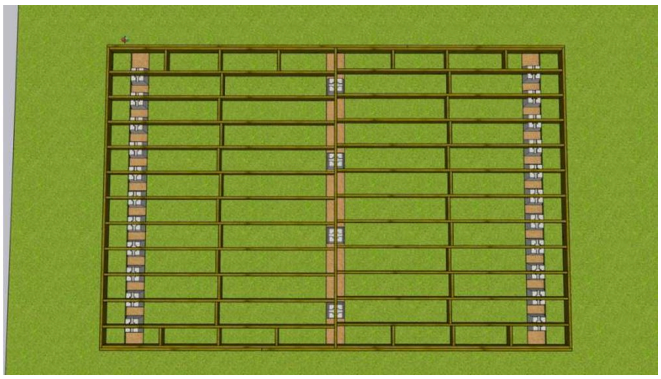
- [ ] Trex Enhance grooved boards (interior boards)
- [ ] Trex fascia board
- [ ] Trex hidden fasteners (include start clips)
- [ ] Cortex hidden fasteners with plugs (border and fascia)

We used Trex Enhance in Coastal Bluff, which has since been discontinued. The links above are for Rocky Harbor, the closest current color in the Trex Enhance Naturals line.

The framing plan

I designed our deck in SketchUp. We dug 3 trenches and set concrete deck blocks on paver base, then framed the deck directly on the blocks.





Overall size: 24' 4 1/2" x 16', with the framing 1" away from the house.

16' boards for the center joist, rim joists and the doubled-up cantilevered ends.

12' interior joists at 16" on center, with a deck block under each joist.

Deck blocks about every 4' under the center joist.

Blocking between every joist, plus extra blocking at the cantilevered ends.

A joist hanger at both ends of every joist.

Your framing probably won't look exactly like mine, so do your research and have a professional check your design.

Part 1: Framing

Watch the framing video to see each step.

Step 1: Prep your area

Take a rough measurement of where the deck will go and remove any grass or debris. Home Depot and Lowe's rent sod cutters if you have a large area.

If you're building next to the house, slightly grade the dirt away from the house for drainage. I laid a 2×8 with a level on it to check the slope. You can skip this if your deck is out in the yard.



Step 2: Stake out the corners and check for square

Mark the four corners with metal stakes. We used the house as a reference: the framing is 1" from the house, and the end of the deck lines up with a window. On the open side, set batter boards just outside the corners.

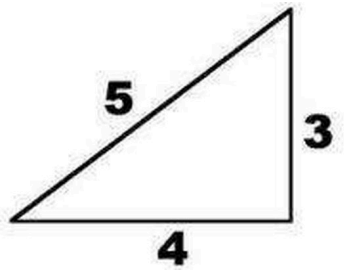
Tie string from the stakes to the batter boards to connect every side. Slide the strings left and right on the batter boards until the corners are square.

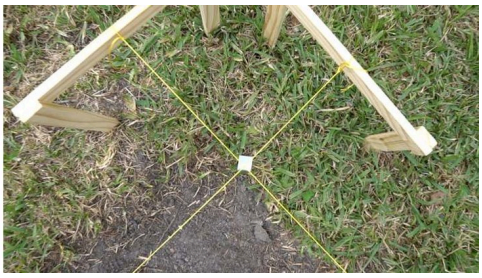
Check each corner with the 3-4-5 method: mark 3' from the corner on one string and 4' on the other, then adjust until the diagonal between the marks is exactly 5'. Place a stake where the strings cross. Double-check by measuring both diagonals of the whole layout. They should match.









Step 3: Mark the trenches and figure out your height

Place two stakes 12" in from each end of the deck and two in the center. Lay scrap wood strips between them as a straight edge and spray paint a line in the dirt as a guide for your shovel.

To get the depth, add up your stack. We wanted the top of the deck about 10" off the ground, a few inches below the patio door threshold:

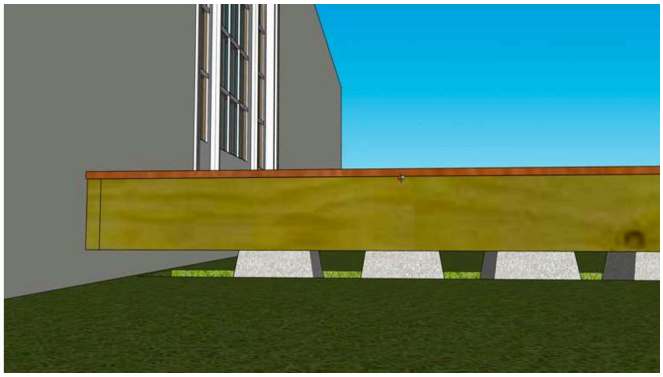
Layer	Height
Deck block	7"
2×8 framing	7 1/4"
Decking	about 1"
Total stack	about 15 1/2"

That meant setting the blocks about 5" into the ground, so we dug the trenches about 7" deep to leave room for 2" of paver base.

A step up shouldn't be more than 7 3/4". Ours ended up 7" to 8" once we added dirt and grass around the deck. If your deck is out in the yard, you'll have fewer height restrictions.





Step 4: Dig the trenches and check for level

Dig the trenches a few inches wider than your deck blocks. Too wide and you'll need extra paver base. Too narrow and you can't adjust the blocks.

Set a few deck blocks with a framing board across them to check for level and height. It doesn't need to be perfect yet. We started with the row by the house, using the door threshold as our reference, and worked out from there.







Step 5: Lay weed barrier and paper base

Stake down rows of landscape fabric to stop weeds and grass from growing up through the deck. Then add about 2" of paver base in the trenches and tamp it down so the deck blocks don't settle.





Step 6: Measure and mark the joists

Lay out 3 good 2×8s for the center joist and the two rim joists, square off the ends, and cut them to length. Mark the joists 16" on center.

Our joists are staggered. I marked two boards, flipped the middle board over, shifted the marks 1 1/2", and transferred them to the other sides.

Tip: we used hidden fasteners for the decking, so staggering didn't matter. If you're screwing your deck boards through the face, don't stagger the joists or your screw lines won't be straight.





Step 7: Level the paver base

Your deck can only be as level as the paver base under it. This takes a lot of small adjustments, adding or removing paver base under each block. Get the center joist level first and work out from there. Once 4 blocks in each row were set, we filled in the rest of the trench to match.

How much slope you need:

Deck boards parallel to the house: slope about 1/8" per foot away from the house.

Deck boards perpendicular to the house: no slope needed. The gaps between the boards drain the water.

Deck not touching the house: no slope needed.

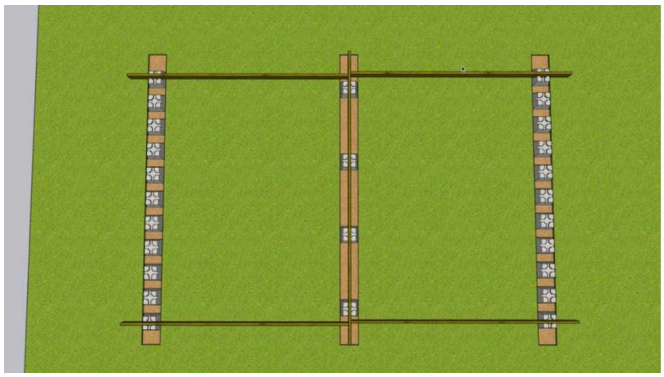
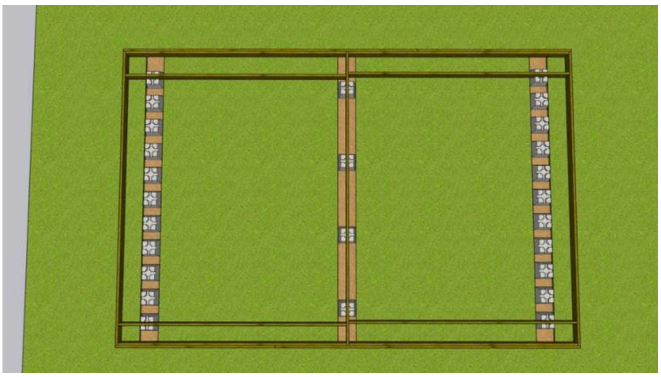




Step 8: Frame the center and exterior joists

Secure the framing with 3" exterior grade screws. Our left and right rim joists are cantilevered, so we installed the center joist and four joists first to hold them up, then added the rest of the exterior frame. It was easier to assemble some exterior pieces in the grass and set them in place.

Check for level as you go, and set every joist crown side up. Before the frame gets too heavy to move, measure the diagonals again and push it square. Double up the joists on the cantilevered ends.

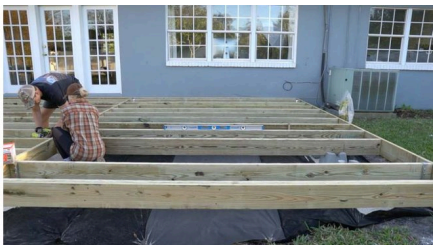






Step 9: Frame the interior joists

Set the deck blocks first, adjusting them so each interior joist sits flush with the center and rim joists. Joists are rarely all the same height, so don't pre-attach the joist hangers. Screw the joists in place with 3" screws for now, crown side up.





Step 10: Install joist hangers and corner brackets

Add a joist hanger at both ends of every joist. I used Simpson Strong-Tie hangers secured with 2 1/2" exterior screws and 10d 1 1/2" galvanized nails. Use corner brackets and 1 1/2" exterior screws on the doubled-up end joists.





Step 11: Add blocking and mound the trenches

Blocking supports the joists and cuts down on bounce. We staggered blocking between every joist and added extra at the cantilevered ends.

This next part is probably overkill, but we mounded sand up around the trenches so water won't pool by the deck blocks and cause settling.





Step 12: Add protective joist tape

Run joist tape along the top of every joist to protect it from water. Before you add decking, consider installing mesh or fencing around the bottom so rodents can't get under the deck.




Part 2: Decking

Watch the decking video to see each step.

Your decking materials

Square edge boards (about 1" x 5 1/2" x 16') make the picture frame border.

Grooved boards (same size) fill in the inside of the deck.

Fascia boards (about 1/2" x 7 1/4" x 12') cover the 2×8 framing.

Cortex hidden fasteners screw the border and fascia through the face, and the plugs hide the screw holes.

Trex hidden fasteners sit in the grooves to hold the grooved boards. The pack includes start clips for the first row.

The Trex deck designer tool will tell you how much decking to order, what sizes, and which fasteners to use.



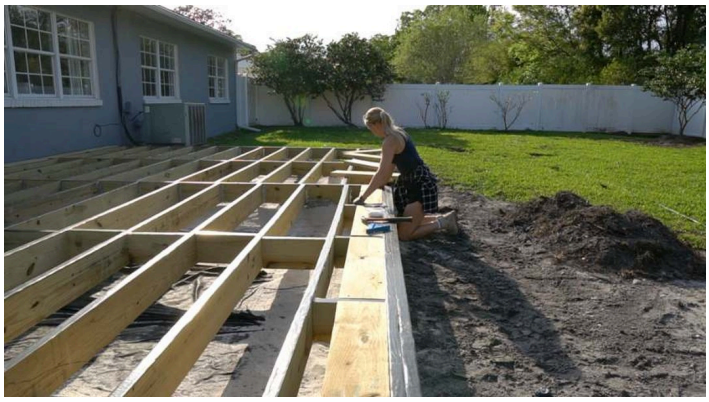







Step 13: Add blocking for the board ends

Add a little blocking where the ends of the deck boards land so they have something to screw into. Trex recommends joists 16" on center.



Step 14: Install the first border pieces

Miter both ends of the first border board at 45 degrees. The fascia is about 1/2" thick and the decking should overhang it another 1/2", so keep a 1" overhang on every border piece.

Dry fit the first piece, then cut the border piece along the house. We had to trim a tiny bit off a corner to get a tight miter. Snap a square chalk line as a guide, since your first boards set the line for the whole deck.

Secure the boards starting at the corner so the joint stays tight, then work down. Use 2 Cortex screws evenly on every joist. I marked the screw spots with a speed square. The directions say no pre-drilling, but pre-drill if a screw is less than 1" from the edge.







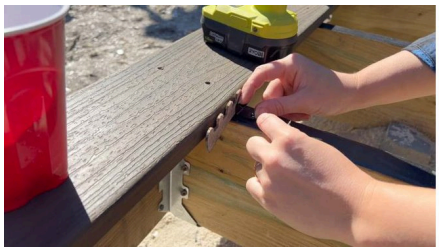




Step 15: Install the starter board

The first grooved board needs start clips because the hidden fasteners have nothing to grab on the square edge border. Space the clips with a 3/16" scrap of decking, then set the first grooved board.

Keep a 3/16" gap between the board ends and the border along the house. The tip of a speed square gave us perfect spacing. Cut this first grooved board to exact length. Leave the rest long and cut them all at once later.





Step 16: Install the deck boards

Square cut each board end with a speed square and circular saw before installing it.

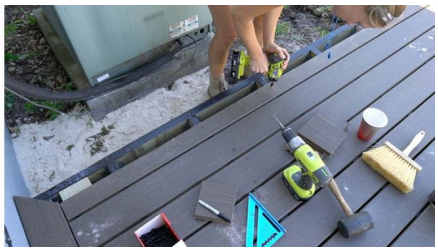
Set a hidden fastener in the groove, push it in all the way with a scrap piece, and tighten the screw about halfway so the next board can still slide in. Once the next board is in, one person presses it tight while the other screws the fasteners down the rest of the way. Tap stubborn boards in with a rubber mallet. If the spacing isn't even, check that the fasteners are seated right.

Once we had a system, we installed all the deck boards in one day. Partway through, finish the border along the house, measuring to the end of the deck and adding 1" for the overhang.

The last board usually needs ripping to fit, since every gap is a little different. Snap a chalk line and cut it with a circular saw (or a table saw). It can only take hidden fasteners on one side, so screw the other side with Cortex screws every 16". Make it the same length as the starter board.



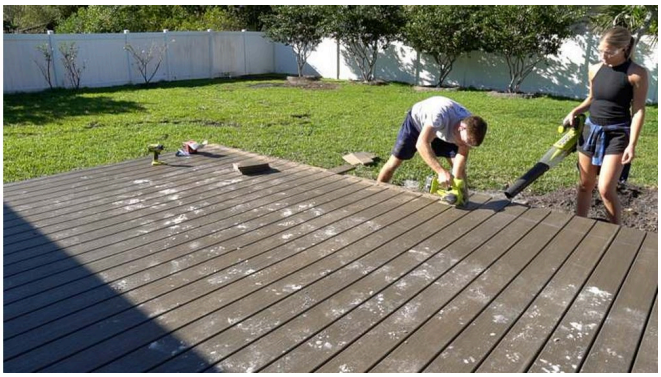


Step 17: Cut the deck boards to length

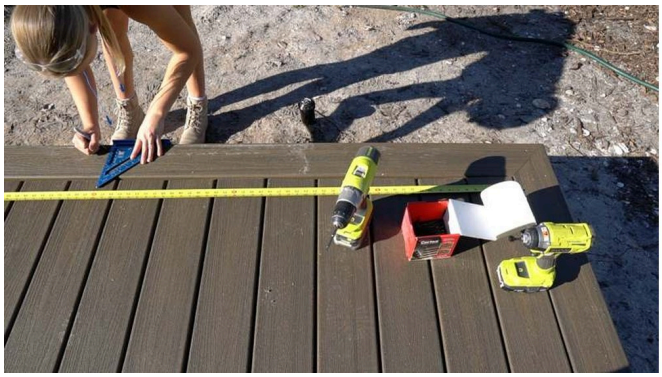
Dry fit the end border piece with its 1" overhang first, then cut the interior boards. Snap a chalk line connecting the first and last boards, set the circular saw to the exact depth of the decking, and cut straight down the length of the deck. A blower helps keep sawdust off the line.





Step 18: Finish the border

Install the rest of the border with the same 1" overhang and a 3/16" gap from the board ends. Miter the corners at 45 degrees and secure with Cortex screws.



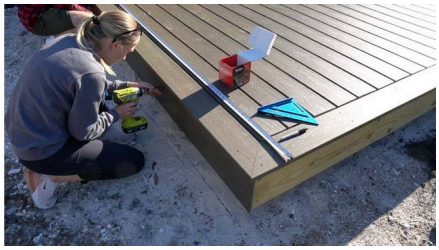


Step 19: Install the fascia

Bevel the miter saw to 45 degrees and cut the corner end of each fascia board. Mark 2 screws evenly every 16". Push the fascia up tight under the decking and screw it into the framing.







Step 20: Plug the screw holes

Fill every Cortex screw hole with a plug and tap it down lightly with a hammer. A rubber mallet didn't work well for us. I couldn't find plugs in our exact color, but they were very close.







More from this project

- Watch the deck design video
- Watch the framing video
- Watch the decking video
- String Light Concrete Planters